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DISCUSSION

Dr Harry Schanzer (*New York, NY*). The paper just presented by Dr Raju et al is extremely important because it challenges all the previous concepts of pathogenesis and treatment of chronic venous insufficiency. Dr Raju, you have really put upside down all our previous notions of venous disease. I have carefully followed your experience over the years. Initially, you reported excellent results with valvular reconstruction even in the setting of postphlebitic syndrome. Later on, you reported improved results with iliac vein stenting in the postphlebitic syndrome, and now you are presenting us with the treatment of primary valvular venous insufficiency by iliac vein stenting. This, if true, is really a revolutionary change in the conceptual understanding of the pathogenesis of CVI and its treatment. I have two questions with regards to your experience.

The first one is: you reported 90% of patients with primary venous insufficiency having an obstruction of the iliac system as determined by IVUS. I would like to know how significant is this obstruction? In a control population with no CVI, how often would you have these IVUS findings? How significant is this finding?

The second question is: is there any additional therapy that you use in these patients that can confuse the results of the stenting? I specifically refer to elastic compression.

Finally, I think that it is very important to wait for corroboration of your results. These are very impressive, and if other groups can reproduce them, this will change significantly the understanding and treatment of venous insufficiency.

Dr Raju. It is clear from modern imaging techniques that two-thirds of the normal population have obstructive iliac vein lesions that are silent. IVUS detectable lesions are present in over 90% of patients with chronic venous disease with CEAP clinical class 3 and higher presentation. Initially, we were worried that we were treating something that is normally present; but the clinical outcome, particularly healing of stasis ulceration, suggests that the obstructive lesion is contributory to the disease process.

No new stockings are issued after stent placement. So, the reported clinical improvement is due to the stent procedure itself.

Dr Mark Adelman (*New York, NY*). If you would, briefly comment on your anticoagulation regimen and how you manage these stents postimplantation. I imagine most of these patients have undergone a thrombophilic evaluation. But if that workup is negative, and they are not found to be hypercoagulable, how do you manage the anticoagulation regimen over the long term?

Dr Raju. If the thrombophilia is absent, they just get aspirin when they go home. If thrombophilia is present, warfarin is instituted or continued.

Dr Rabih Chaer (*Pittsburgh, Pa*). How do you define venous stenosis on IVUS? What is your definition of a venous stenosis in general? And what degree of stenosis do you treat with stenting?

Dr Raju. The normal iliac vein measures about 175 to 250 sq mm. So you can measure the area with IVUS planimetry software and compute the stenosis. Anything over 50% area stenosis appears to be clinically significant.

Dr Peter Gloviczki (*Rochester, Minn*). This is a tremendous experience, and as Dr Schanzer said, it changes a lot of what we know about venous disease.

When we measured 23 limbs with venous reflux, we found that it became worse in 24% after iliocaval stenting. So my question is: do you have a subgroup where you see worsening in venous reflux?

Many patients who need iliac venous stenting also have infrainguinal venous reflux or post-thrombotic obstruction. It looks like you are not recommending elastic compression after venous stenting even in this group of patients. Could you tell us why not?

Dr Raju. Reflux does not get worse after stenting when the data are analyzed in aggregate; in fact, there was a small but significant improvement in VFI_{90} afterwards. We have not performed intensive subset analysis to examine if this may not be the case in some limbs.

Most patients that come to us have already gone through compression programs. In about one-third of patients, compression is not appropriate because of local condition of the limb or systemic deterrents to regular use. In others, compression is not effective or not tolerated. Noncompliance with prescribed stockings is a difficult and often incorrigible problem that we have dealt with in a separate publication. We allow patients to maintain current compression regimen (use or nonuse) without modification near term after stent placement. Long term, they are allowed to abandon stockings if it made no difference. Most patients abandon stockings entirely or limit usage to only "hard" days if clinical outcome is successful.